Micro Commercial Components

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20736 Marilla Street Chatsworth
CA 91311
Phone:(818) 701-4933
Fax: (818) 701-4939

SI2333

P-Channel Enhancement Mode Field Effect Transistor

Features

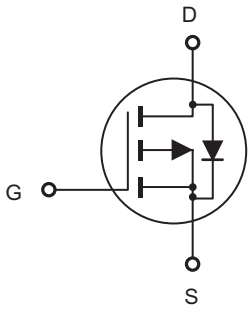
- Halogen free available upon request by adding suffix "-HF"
- TrenchFET Power Mosfet
- Excellent $R_{DS(ON)}$
- Marking Code: S33
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

Maximum Ratings @ 25 C Unless Otherwise Specified

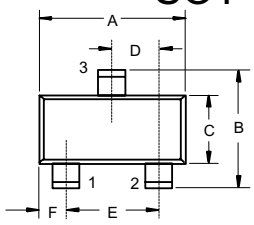
Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-12	V
I_D	Drain Current-Continuous (1)	-6	A
I_{DM}	Drain Current-Pulsed	-20	A
V_{GS}	Gate-source Voltage	±8	V
P_D	Total Power Dissipation	0.35(2)	W
		1.1(1)	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	357(2)	℃/W
		113(1)	℃/W
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃

NOTE 1. Device mounted on FR-4 substrate board, with minimum recommended pad layout, single side.
2. Device mounted on no heat sink.

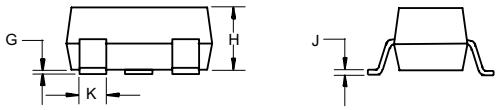
Internal Block Diagram



SOT-23

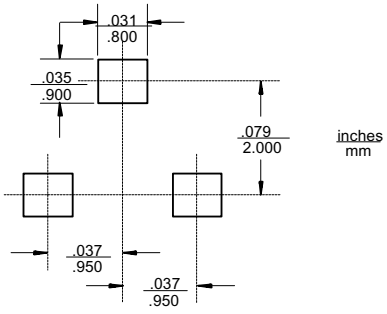


1.GATE
2. SOURCE
3. DRAIN



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout



SI2333

Electrical characteristics (T_a=25℃ unless otherwise noted)

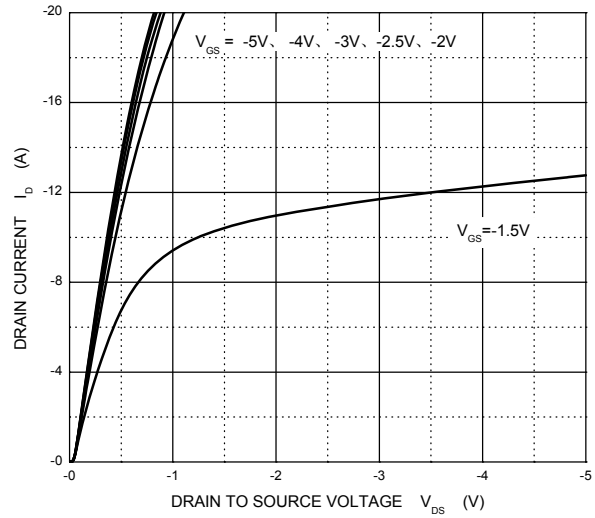
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-12			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-12V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±8V, V_{DS} = 0V			±0.1	
Gate threshold voltage (note 3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4		-1	V
Drain-source on-resistance (note 4)	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-5A			28	mΩ
		V_{GS} =-3.7V, I_D =-4.6A			32	
		V_{GS} =-2.5V, I_D =-4.3A			40	
		V_{GS} =-1.8V, I_D =-1A			63	
		V_{GS} =-1.5V, I_D =-0.5A			150	
Forward tranconductance (note 3)	g_{FS}	V_{DS} =-5V, I_D =-5A		18		S
Dynamic characteristics (note 4)						
Input Capacitance	C_{iss}	V_{DS} =-6V,V_{GS} =0V,f =1MHz		1275		pF
Output Capacitance	C_{oss}			255		pF
Reverse Transfer Capacitance	C_{rss}			236		pF
Gate resistance	R_g	f =1MHz	1.9		19	Ω
Total Gate Charge	Q_g	V_{DS} =-6V,V_{GS} =-4.5V,I_D=-5A		14	21	nC
Gate-Source Charge	Q_{gs}			2.3		nC
Gate-Drain Charge	Q_{gd}			3.6		nC
Turn-on delay time	$t_{d(on)}$	V_{DD}=-6V,V_{GEN}=-4.5V,I_D=-4A R_L=6Ω,R_{GEN}=1Ω		26	40	ns
Turn-on rise time	t_r			24	40	ns
Turn-off delay time	$t_{d(off)}$			45	70	ns
Turn-off fall time	t_f			20	35	ns
Source-Drain Diode characteristics						
Diode forward current	I_S	T_C=25℃			-1.4	A
Diode pulsed forward current	I_{SM}				-20	A
Diode Forward voltage (note 3)	V_{DS}	V_{GS} =0V, I_S=-4A			-1.2	V
Diode reverse recovery time (note 4)	t_{rr}	I_F=-4A,dI/dt=100A/μs		24	48	ns
Diode reverse recovery charge (note 4)	Q_{rr}			8	16	nC

Notes : 3. Pulse test; pulse width≤300μs, duty cycle≤2%.

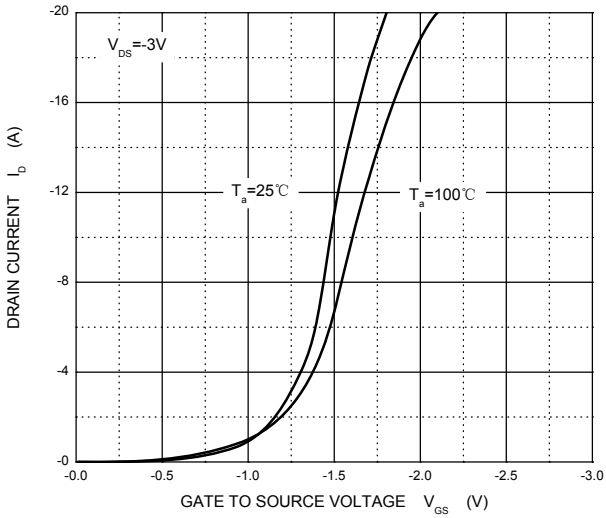
4. Guaranteed by design, not subject to production testing.

Typical Characteristics

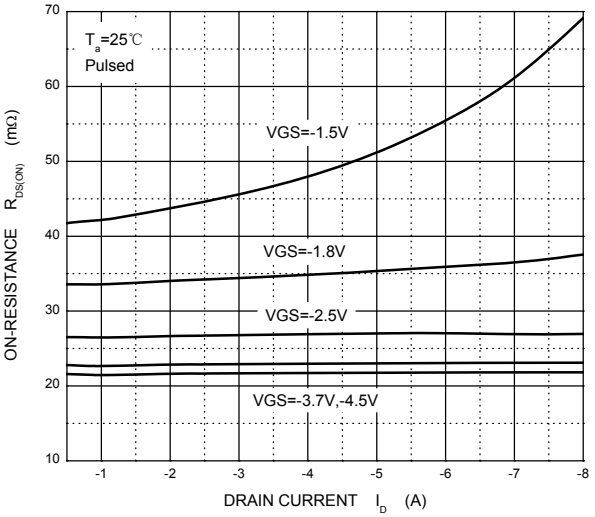
Output Characteristics



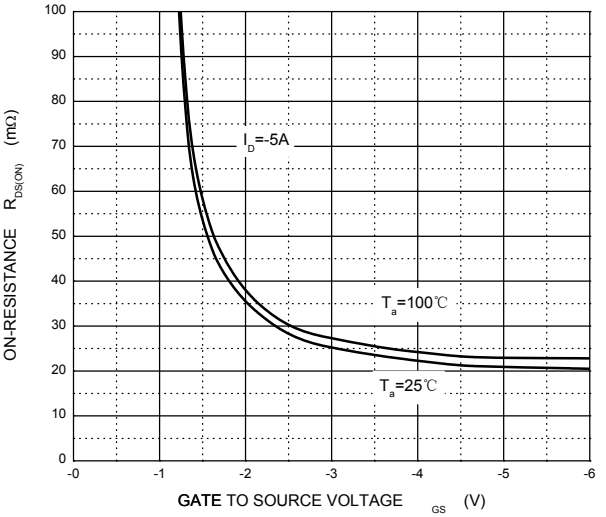
Transfer Characteristics



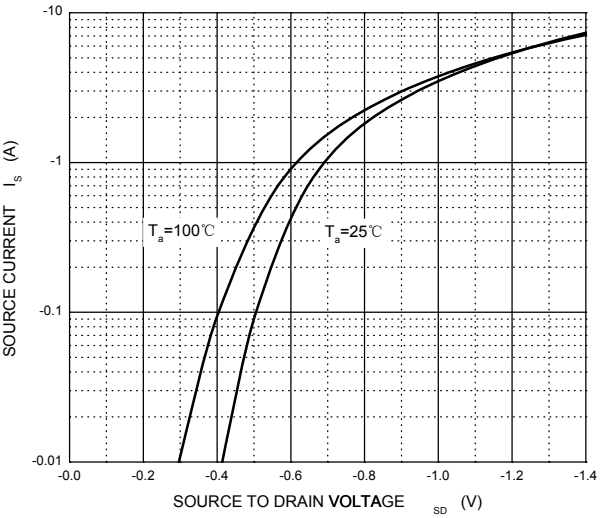
$R_{DS(ON)}$ —— I_D



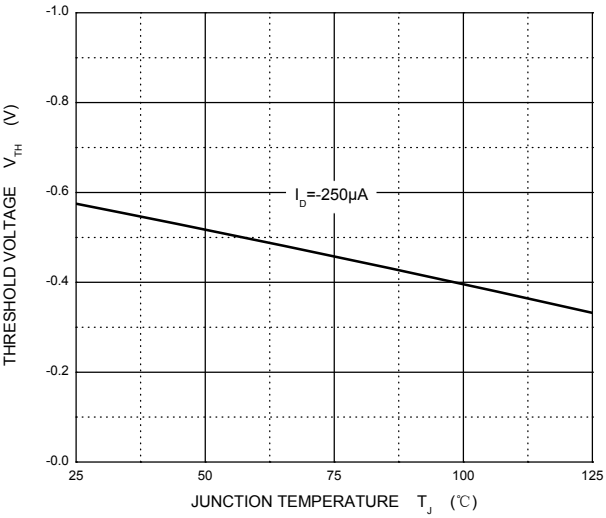
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage



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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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